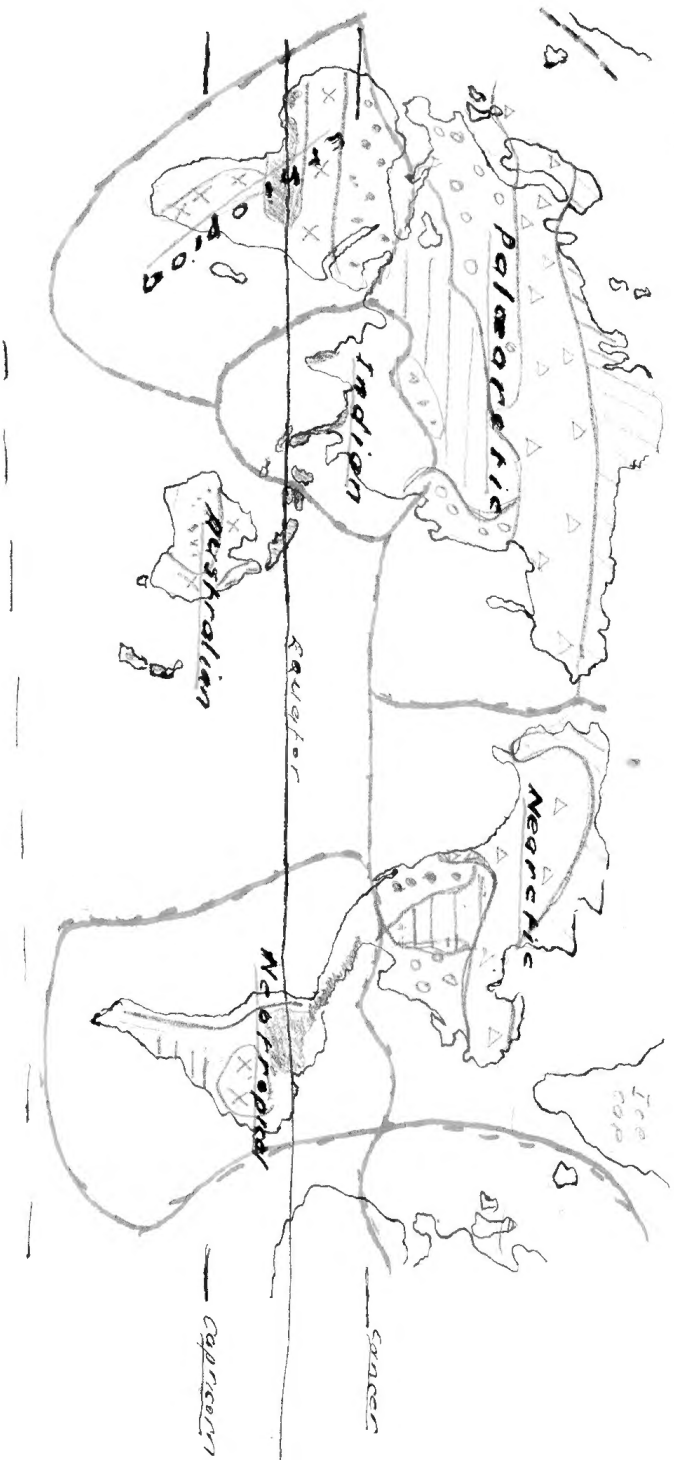


BIRDS
of
THE WORLD

Zoogeographical Regions

- | | | |
|---|--|---|
|  Tundra barren waste |  Desert shrub |  Tropical rain forest |
|  Coniferous forest |  Steppe & prairie grassland | {  Highlands & mountains |
|  Mixed deciduous forest |  Savanna | |



Notes on Geographic Regions
and their Avifauna

Palearctic Region

Tundra, Conif. Forest, Decid. Forest, Steppe., Seacoast

Crows Linches Larks wrens Ledge-sparrows
grouse pheasants acedals

Nearctic Region

Tundra, Conifer, Steppe, Desert Shrubble, Decid. Forest.

Cathartidae, Melagendae, Troglodytidae,
Mimidae, Vireonidae, Parulidae (Woodpeckers)
Chamaelidae (Wren-tit)

Ethiopian Region

Desert Shrub, Savannah, Trop. Rain Forest.

Asuch, mouse ears, plantain - eaters, secondary forest

misopa rambas

Indian Region

Tropical rain forest, plains

Broadleaves: Eulalia, Brongnia, Nymphaea,
Habenaria etc.

Australian L. Rivers

Desert Shrub, Sarcocolla, large rainforest

Emu, Cassowary, Lyrebird, Bird, Pheasant,
Megapode, Pachycephala, Parrot, Noddy

Neotropical Region

Trop. rain forest; Savannas, steppe + grasslands

~~How~~

Hootzai, Aves, toucans, Jacararas,
not much Tinamous, Rheas

Ratite: The word Ratite is used in a
vernacular sense only, nowadays, for
what must be regarded as a polyphyletic
group composed of the following orders:
Scoliopterygiformes, Alcediniformes, Cariamiformes,
Phalconiformes, & Scaphiophaga; Some would
combine the last two which are
South American. The Ratites are
also referred to by various authors
as "Struthionids" or "Palaeognaths".
— Condon C A D Vol 22. 4. 44

Under Sphenisciformes
(maybe diff. position & spelling)

Spheniscidae Penguins

Related to Petrels - group

Flightless - differ from all birds in having
no developed ^{primary} feathers for wings.

flippers used only for swimming - but only
out - used in steering

water some speed up by beating wings

Distrib: Humboldt Penguin, South & Peru &
with Chile, Magellan Penguin, etc.

Galapagos Png. (Spheniscus mendiculus)

only one original to tropics - just north of
equator.

distributed all over Antarctica but Antarctic coast,
continent etc.

Habits: Swims sea water, some a fresh
also. Eggs 1, 2, 3. Large & small only

1 egg - both have a incubate - on full under
flap of skin. In fact does it - parent.

weeds of plankton & etc. There's
brood in normal fashion.

N/B 9/10 of feeding markings are on head.

Bodies under water great deal.
Come ashore for rapid moult.

16-17 species.

2' Order Struthioniformes

Fam Struthionidae. Ashmeadi:

Dist. Lithias on reg.

Chalcid. Chalcididae. Chalcid.
2/5 only 3rd & 4th. Penis developed.
Cocoon medium enormous. Wings short,
in perfect shape. Tail moderate. In 2nd stage.

Habit. Solitary - later by ones and great flocks
in forest and shrublands. Polygamous

all hens of 1 water lay - same nest. incubator
my ♂ but occasionally ♀

Habitat Plains, & down to the. Parks 5-12.

leggs - creamy white. - sandy hollows 10-30

1 sp. 3-4 subsp. - 1 *Syrphoctonus* extant 1941

Voic Booming roar.

Young *Heliconia* ... *Heliconia* Polypogon
107.

Order the iformnes.

Family Rheidae - Rheas.

Measurements 3 front toes Culmen large - Wings
short - perfect soft feathers - Tail not apparent

Dactylophala Neotropicalia : Bolivia Argentina,
Uruguay Brazil Paraguay.

Habitat Pdoines, mesochy zone.

Stalder was hunted with this lot (very small)

200p up to 20-30 after run of every 1000

White-browed. Polygonum May 1906 30-60 eggs -

Line W. St. # 10000. 3. Eggs golden
yellow. 1st inst.

(Hudson) B. narvini: very large by feather

• Tails - white w/ black bands. young grey w/ black +
white under others

1/8 Helman: Catfish like species give two
grains of Phosca. 2-4-6.

0 мая 22-й.

1990

Order Casuariformes.

Fam: Casuariiidae: Cassipoupa

~~Head~~ Head & base of culmen with
elevated helmet. Tars³ long - middle longest,
outer longer - inner one armed with long
paw with claw. Wings rudimentary tail
not apparent

Diet Paper & Subregion vol. Vth 1st.

Habitat Scrub.

h. h. h. High nose bill

Station 25 - 3.4 m. g. m.

57. 2. 2. 11.

Incub.?

Sp. 2 -

Order: Cosmulariiformes

Farm Dr - Jan 1890 : 600.

Character is very bad. It is not apparent. 3/10

Deaf Aunt

Order: Apterygiformes

Fam: Apterygidae: Kiwis

Characteristics: Bill long, stout, dark. No wings.
Featherless, covered with feathers, tail
not apparent. Toes 3 before & short hind one

Dist. New Zealand

Habitat: damp dense forest - feeding low -
herbaceous, grass. Food - worms, insect
larvae etc, vegetable matter.

Habit: Small little fanny.

Voice: Short cry

Nesting: 1-3 eggs smooth white

Burrows - for eggs, vent. etc.

Threatened.

Order Tinamiformes (Cryptura) → Nandu
B. Aruco Cat

Fam: Tinamidae Tinamou

Characteristics: Superficially like partridge.

Wings short concave, toes - mostly 4 -

sometimes 3. Hind toe when pressed, long

Nedupras check looking, resemble young of
some Rallies. Stout legs, powerful. Fly 500-1000 yds.

Distr. Out: Neotropical only.

Habitat: In forests, some open country,
moor, mountains. From Mexico south

Habit: Polygamy 1 ♀ & 1 ♂. Brownish

yellow white. Tailbone parts enclose etc. Nest

on ground under bush. Only incubates

Eggs: Unusual: Buried in metal or fayed ^{predomin} _{predomin}
various colours, purple, green, chocolate.

Furcula present, well developed skull

Order Gaviiformes

For: Gaviidae. DIVERS (Loons - 11.5.2)

Characteristics: Hallux on level with other toes.

Front toes united by web. Tail short, stiff.

Foot propelled diving birds. Plumage harsh, not soft & fine. Like gulls. Very not stylized. (Only distantly (if any) related to Gulls)

Distribution: Northern hemisphere - Holarctic - circumglobal.

Habitat: Lakes in both forested, plain & mountain country. Very hard ground. E. sea (marinel)

Habits: Very rapid dive & swimming - surface up & down on submerge like sub. with head up only. Essentially birds of open water. Flight swift & direct. Excellent may, June etc. taken

Nesting (generally) on any firm ground on or near water. Eggs 3 - 4. incub. 28-30 days.

Voice: Laughing-like

Order Columbiformes (Fairy Columbidae)

Characteristics: Hallux above level of other toes.

Foot 2-3. Tail 12-14. Foot propelled diving birds. Plumage soft - fine-like.

Belly feathers characteristic macroscopic structure - same with apart - radii base spiculate. Young more or less speckled black & white.

Distribution: more or less throughout world but especially in genera confined N. & S. America.

Habitat: Lakes, rivers etc. may also occur in

Habits: Adapted as diving. Mostly nests on land and mostly - fly little generally.

Food: invertebrates - invertebrates, fish.

Nesting mostly - some conceal eggs.

Voice: Harsh, throaty notes.

1) Order Procellariiformes: Albs. Petrel etc

Fam: Diomedidae: Albatrosses

Char. Nostrils lateral - surrounded by slender culmen

2 Natural groups: 1 Thromidia 3 Phoebastria

or Footy albs. → long tail - curved.

Distribution also persistence in bill of primitive
Tubenarius characters = culmen - divided lateral
plate. lower mandible. oil discharges through
nostrils (mouth). source unknown (murphy)

Distrib. 15 Sp. ♀ = Temperate & Subantarctic
of other oceans

D. ierocrata
Waved Alb.
Peru, Ecuador, Galapagos I. → Technically equatorial

D. albatrus - Sh-tailed alb.
almost extinct (3) → Nth Pacific

D. immutabilis - Laysan Alb.

D. nigripes - Black-footed Alb.

Also Local distribution: ✓✓

Most southerly - circumglobal. P. pelagicus,
D. exulans, D. melanophaea, D. longirostris

Temp. sub-antarctic: P. fusca, D. chlororhynchos,
D. bulleri, D. counta, D. epomophora (petrel)

Habits: Generally silent. Nest may be depression in
sand or top of mound of grass made by plover

1 Egg: White, chalky, usually reddish spots.
larger end. N/O breeding season in all - Nth
Pacific Feb - Sept-Dec. young fed on foot
requiring pin-prick stimulation. down - - nest
fed down replaced by feathers.

In some cases adults feed only in alternate
years. Imm. birds usually diff plumage from
adult

Order: Procellariiformes:

Fam: Procellariidae - Shearwaters, Petrels

Char: ^{nostril tubes united, opening forward, separated by septum.} Bill tip decurved strongly

Distribution: ^{most are in the tropics and some are in the temperate zone} whole world but ^{mostly} numerous in Southern Hemisphere

Habitat: Sparsull here when except where breeding

Habits: Some migrate to other hemisphere

Nest: ^{But Fulmars, Antarctic Petrel, Pintail Petrel, Snow Petrels: Noddy, Cliff Ledge S.} Generally holes, burrows, - under rocks etc

Gen: 1 egg a long incub. period - incubation young born blind. Both sexes incubate, ^{parent} - after getting food returns at night. Young remain in nest some weeks - downy - fat. N/B Fully fed young left in nest finally - live on accumulated fat while young feathers, before leaving. Food Fish, squid, crustacea, floating life - scraps. Grant Petrel a scavenger & also eat small sea-birds. ^{Voice usually silent - occasional wail at night - and hiss} Ovary: Many will lay if food is abundant - usually given from surface flying in with a noise - like a

Fulmars: (3 geog. groups - Fisher "The Fulmar" p7)

1. Fulmarus glacialis (with 1840) = RHOU 74 Fulmarus (Pterocella antarctica stephens) (Full synonymy Fisher p474)
= ANTARCTIC FULMAR (Silver Grey Petrel.)
^{Rd. 40°} Breeding Antarctic & sub-Antarctic - St Helena, NZ, Peru, Australia, Kerguelen.

2. Fulmarus glacialis rodgersii Cassin 1862: Pacific Fulmar.
(Synonymy Fisher p470) Breeds Nth Pacific 46°-61° (possibly 12°)

3. Fulmarus glacialis glacialis (in 1761): ATLANTIC Fulmar
(Synonymy Fisher p473) Breeds Nth Atlantic & Arctic. 50°-82°

Shearwaters & Petrels: (Alexander: 35 Petrels, 18 Shearwaters)
Petrels: macropetrels, Daption, Halobuena, Thalassea, Adamastor, Procellaria, pterodroma, Pterodroma.
Shearwaters: Puffinus (mostly petrels)

Prions: Pachyptila: 6 sp. Strong & common - Ant. - sub - ant - north & sub - ant. Common in flocks - Swift flying (Which birds - 2000 ft. To some extent tolerable for 1000 ft. - Lomellae on both sides of the body)

Order Procellariiformes

Fam. Hydrobatidae (Shearwaters)

(Thalassidromidae)

Small to medium birds. slender, long bill, narrow wings in simple forked opening. Tarsi, reticulate scutate or hooked. Tarsus webbed. Legs often long. Tarsus usually square or forked. Most dusky, few grey some with white. Tarsus can be reddish. All with legs & bill black. Sometimes short-legged form. Grouped with albatrosses - but considered alone (Alexander)

Distrib. North & Southern Hemisphere. Pacific, Atlantic & Antarctic. Includes albatrosses. Breeding range includes both Antarctic & Iceland & Gannets.

Habits: congregates on small islands around season - make burrows or use crevices. Albatross burrows etc. Before egg laid both birds in burrows. The later incubates. Eggs 1. White, oval - partly often marked with red, purple, black spots. Hatching 6 weeks - left after well fed - follows parents & all other feathers develop. Neophron - white - on breeding grounds like other black - silent but noisy.

Flight: After pattern water with feet - flying from surface while wings go up & down. In flight - flutters - sometimes, sometimes. Right wing - butterfly like. On land legs and tail feathers. Flutters. but no evidence of this.

Migration Wilson's St. V. Oceanic, Pelagic, - breeds antarctica - migrates to Labrador, Britain

Colors: Mainly & entirely sooty black. {Heterosomus, Oceanodroma, Nesofregatta, Fregatta

2. As above but with white rump. {Hydrobatidae, Oceanodroma, Oceanic

3. Mainly/entirely sooty black above - larger white below. {Oceanodroma, Nesofregatta, Fregatta

4. Partly or entirely grey above; Grey or partly/entirely white below. {Oceanodroma, Gannet, Pelagodroma

Also called Mother Carey's Chickens - Mother Carey = corruption of water carriage - based Virgin Mary.

Order Procellariiformes

Fam. Pelecanoididae - Diving Petrels

Characteristics: Bill with nostrils separate - open directly upwards - plane of opening horizontal. No hind toe.
Distinctible throat patch. In Sth Hemisphere: biological analogue = 3 sublet, murrelet (Hicidae) & north.

Distribution Remarkable & only within hemisphere

b Between $35^{\circ}S$ & $55^{\circ}S$ range from Sth Amer through Sth Atlantic & Indian Oceans to Austral NZ. - but not in some latitudes - Sth Pacific due species - Peruvian D.P. (*P. garmani*) ranges to Hapais west of Sth Amer - west Humboldt current.

Habits: More frequent near wash & banding islands. Singly or in pairs. Dive 10-100 ft. fish, crustaceans etc. Rapid zoom-like flight straight. Use short wings under water as if fly. - sometimes emerge from water flying - fly through a wave.

Breeding: Subterranean - under rocks. ~~the~~ Eggs 1 - white. Nocturnal while breeding. One long incubation - day time. Voice little - croak & mew when breeding.

Breeding range:

P. urinatrix: Common D.P.: Falkland, T. de Canby, Gough I., Bass St., N.Z.

P. garmani: Gaviyon D.P. King? Heard? Macq?

P. magellanicus: Magellan D.P.: South of Magellan

P. garmani: Sth & Sth Am. coast

Sp. 4. (Genus)

(Frigate birds semipalmated)

Order: Telecani formes : Tropic Birds
Pelicans, Frigate-
etc. Bird

Fam: Phaethontidae: Tropic Birds (Booby-like)

Char: Bill pointed. central tail feathers elongated.
hind toe very small cutting edges of
mandibles serrated. tarsus very short
long tail feathers grow in both sexes & appear long
in season

Distrib: All tropical & sub-tropical seas. (Olivier)

Habits: High sea - quick strong birds
diff. rocks

Feeding: Plunges into sea from up to 50 feet
per fish, squid. Voice shrill-harsh.

Breeding: somewhat gregarious - rookery described
islands - some soil
of the 1. slate, yellowish reddish
grey colour, streaked reddish brown - purple

Young: cheeks whitish down

Immature: all above

Do not often settle on water - float on
3 Sp

P. aethereus. Red-billed:
... .. Pacific, Atlantic,

P. lepturus 1

P. rubricauda: Red-tailed:
... ..

Called Boobies - because "carry a"

Order: Pelecaniformes

Form: Bulidae Boobies, Gulls, etc.

Char: Bill strong, 4 toes webbed - bill never hooked, cutting edges of mandibles serrated - outer & middle toe, middle toe broad & pectinate. Gulls & penguins

Distrib: Species spread throughout trop & sub-trop. - 1st. Pacific, 2nd. Atlantic, 3rd. Indian.

Habits: Feeds on fish. Dive from up to 100 ft. - swim on under water. - have been caught in nets 90 ft below. - considerable flocks.

Breeding: Colonies on islands & reefs. Nests some in burrows - young & set, others sit on ledge or rock or ^(bushes) (bushes, high off ground).

Eggs: Temp. 2000000 1. Trop. Boobies 1, usually 2, occasionally 3. Eggs small oval - pale blue under white & light blue.

Young: Hatched naked - gets down. Puts head in bill & removal of parent for food.

Voice: Scream at sea - noisy & great noise when landed.

Imm: Most spp. show at first 1st & 2nd plumage. Red & white, etc. - 1st & 2nd plumage.

Classification: Most typical spp. known as Boobies. Gannet applied to whole family, but sometimes one in particular. Gannet - Gannet - Gannet. Noddy - Noddy - Noddy. Y. cutts's noddy - Gannet - Gannet - Gannet. Breeding: (1st & 2nd) (1st & 2nd), (1st & 2nd), (1st & 2nd).

Channel Is. - Canada - Newfoundland's 1st spp. - 1st & 2nd.

Order: Pelecaniformes

Fam: Phalacrocoracidae: Cormorants.

Chop: 4 toes webbed, tibia, pouch small, bill laterally compressed hooked at tip - tarsus reticulate - web is longest other decreasing regularly. Tail wedge shaped - skin eye not as dense as perisperm. Auk - meat for living?

Distribution: all parts of world except central pacific hemisphere - chert. tropicall. Specially pelagic - like Laysan - N/B All cormorants of Nth Hems black but south many have white underparts also the common cormorant black - Europe Asia & W of - white under in Africa no ex. / Expects to Sub-antarctic.

Habits: Fish-eating, piscivorous, piscivores. Dive for surface. Many jump from water to do it. Use feet for propulsion. In deep water may use wing, also. Common cormorant employed - 2 birds etc. with only 10 with 1 bird.

Habitat: In a sea exclusively marine. Commonly coastal zone & freshwater. Lakes etc.

Habits: mostly sociable. Breed - colonial - on rocks, islands, on cliff ledges, in trees. Build nests - better, otherwise clawed as young.

Quanto: Like cormorant, 1/2 of. Olanary Com. 1/2 of. Very valuable - in regard

Eggs: 2, 3-4 - elongate pale blue. Under skin covering. Young hatched naked. Small, brownish. (Big flag)

Ornaments: most with some feathers - chest, bars on wings, planks, back.

Names: cormorant & that interchangeable except that bird where applied to 2 species.

Spp. 30 (mostly in 1-2-3-4)

1. P. carbo: Common cormorant - one black corm. N Am, Eur. Africa Asia Austral. NZ.

2. P. capillatus Jap. com: black corm. for eating, good Japan.

3. N/B Nannopterum harrisi: Flightless corm.: Galapagos. Wings much reduced - no keel - cannot fly - waddle on land - body upright.

4. Grey cormorant: 3 spp. 1 in NZ. 1 Chatham 1 Peru

Note 3 genera - Alexander & Peters: Phalacrocorax, Halictos (4 little cormorants) Nannopterum.

N/B Crest present - Hackland S. Do. Shags.

Order Pelecaniformes

Fam: Anhingidae: Snake-birds; martins)

Char: Bill straight - no hooked tip. Cervical vertebrae articulated & produce curve in neck muscular mechanism such that it is suddenly straightened - Houspierre's fish with bill.

Distrib: NEthiopia (South) India, Seg, Aust. Reg (acc. to NZ) - tropical & sub-trop. America.

^{2 sp} Peter = 4 sp. Moya = 1 sp. Phronde, Seg; 5 sp.

Habitat: almost exclusively freshwater lake & rivers Alaxo

Habits: Feed entirely under water. Dives, sometimes takes fish between mandibles. (Prey + vent) often impales fish on lower mandible - A of ft. Propelled by feet

Nests: Stick nests in trees. Eggs 3-4 greenish white lime coated.

Called water-Turkey - America

Order Pelecaniformes

Fam: Fregatidae: Frigate-Birds (Man o-war Birds)

Char: 4 toe webbed but webbing highly conjugate bill long - both mandible - strongly hooked at tip. Long webbed tail. Monophyletic

Spp. Peter = 4 sp. Moya = 1 sp. Phronde; 5 sp. large gulfed pouch (P. allives). Feeding short - feathers.

Distrib: Tropical & subtropical world but 2 spp. America - Moya

Habits: not completely aerial parasite bird - perhaps fall birds except Luff. Spent day in air - roost at night in dense & very near coast. In some Pacific islands, some birds - leaved like Pigeon - & on 5 we were very abundant.

Purau common. Dulls, Terns - for the most part as designed fish caught - each may reach wing 10-12 feet. Purau catches prey with its beak. Then catches Frigate as Man o-war birds by early sailing. Do not settle on water o-laws

Voice usually a loud - harsh grating call at times.

Bird: Colorless. Prop. call. Nest chimney like structure fresh, rock. Have to protect young from own species

As Moya will do. Eggs - 1 - white thick raked then white down. young always white heads.

Sex Dimorphism & large - the ♂ diff. col. except Ascension F.B. Ascension F.B.: Equila - Ascension Id: Christina F.B.: Fan (Christina F.B.)

F. mono: Great Frigate B.S. (West) 12-14 sp.

F. magnificus magnif. F.B. (Aust)

F. aiala lesser F.B.

Order: Ciconiiformes: Herons, Storks, ^{allies.}
(Mayr & Amadon arrange order differently)

Fam: Ardeidae: Herons, Egrets, Bitterns.

Char: Bill straight pointed, notched, etc. be broad
basal web, obsolete at base of inner toe - powder down
pale - basal space bare - mid claw pectinate.

Distrib: Throughout world continent. ~~over~~

Locatns: marsh & wading birds. Head retracted onto
shoulder in flight. Colour very grey
white, blackish, brown. Habits crepuscular -
Nycticorax. Nape much plumbeous - some.

Order Ciconiiformes.

Fam: Cochleariidae: Boat-billed Herons.

Char: Bill very broad gangy shortened.

Exp. det.: Newton's "Mexican Birds" p. 191

A/B Mayr & Amadon place it - Ardeidae & certainly

looks simply like a modified night heron -
but web more clammy, mid toe pectinate -
osteology - very bridgey, but 4 powder down
tracks only 2-3 - Ardeidae - thus he
believes separate family justified. See also
cat. Birds, pike and p. 11 No. 2 - p. 238.

Distrib: Neotropical Mexico - Brazil -

Bolivia - Nth Argentina.

Nothing seen 5 or 6 birds.



Order Ciconiiformes

Fam: Balaenicipitidae: Whale-headed Storks

Char: Culmen flattened & grooved broad at base of
forehead - narrowing toward end - distinct
dental hook. 2 powerful digits. ^{both}
- lower bare - no web at base of inner &
outer toe. 1 species.

(Many placed with Ciconiidae)

Dist: Somerville - Africa - Sudan, Uganda,
Belgian Congo, rather

Habits: Shorter bill nearly as broad as long
size, elegant. Hides by day. Feeds in
evening - stands with bill on breast.
In flight head held back like heron (Pelecanus)

Nest: Flattened grass on dry land.

Eggs 1-2 - dull white chalky green
much stained

Foot: 1st & 2nd

Voice: hoarse yawn: Rattles bill like stork
(Pelecanus)
may



also called Bong bird, Stork-bill

Order Ciconiiformes

Fam: Scopidae: Hammerheads (Hammerkop)

Char: Culmen narrow & straight - dental hook, no
nostril above. Forehead, like feathers, marked with
at base of line, none, toe. ... all over a grey
at separate

Distrib: Entire Ethiopian region. 1 species
wide dist. - young season. Call: shrill liquid

Char: Name derived from appearance of bill when rest, bill
such as hammerhead ♂ & ♀

Curious legend: ... Haters believe ... the bird
soot web. Shuffles feet - note to denture foot
Flight 'neck not move' right back like heron
less nocturnal. Owl-like flight



Nest: known - tall, mostly sticks -
outside decorated with various materials. Small
entrance hole - side - edge - placed with mud
chopman reveals 4 months & built nest. Eggs 3-6 white

Order: Ciconiiformes

Fam: Ciconiidae: Storks, Jabirus

(Wood Ibis)

Char: Heron-like elevated above other legs. No powder -
long patches. Bill NOT hooked at tip. Bill
w/ webbed at base. No premaxilla on middle
toes. Stork-like in flight with neck outstretched,
neck slightly - not folded like heron.
App: May: 17. NO. see muscles - some at least

Distribution: Pal. Ethrop. Nearct. Neotrop. Anat Ind

Char: Wide variety of form. wide spread. bills gen
long straight - but ~~compensated~~ upturned at tip -
Mycteria jabiru americana, recurved - this = Wood Ibis
of Ethiopia, showing gap - Ardeotomus - open
bill of Ethiopia

Generally solitary, shy. but some occur in large
flocks in inland waters, streams, etc
Hab: Water - usually - clatter bills

Nesting: Gen. Staked nests - trees, cliff, ledge, etc. ^{large nests}
Some nests in colonies. Eggs 3-4 white
chubby - often 3 only.

Habitat: Several spp. some in bogs w/ dry areas
of some distance from water. Some are scavengers.
e.g. Marabou. Great Ibis. etc.

Marabou - Leptoptilos curvirostris (Linn) some have
neck like vulture. Serrated edge of lower mandible
front - notch above eye. "1" above eye. "1" - head
feathers - under w/ curved. Wood Ibis

White Stork - Ciconia ciconia Europe Africa

Jabiru: 1 Jabiru mycteria (Licht) SW Mexico through E
Stands 4-5 ft. bill slight upturned head
neck bare black but lower neck bright red.
(Mycteria americana L.) ^{this name} The birds called Jabiru
apparently above but by Newton, Cambridge
N.Y. Hist. & Hudson but it is its name?
the Wood Ibis

2 Xenorhynchus asiaticus : Jabiru: India
- N.G. Austral. (saddlebill? Africa)
"long necked crane"

Wood Ibis: Mycteria americana L. W. Neotrop. E. Ind.
Neotrop. white, black neck head - black
called Ironhead. w/ white neck band. Bill decurved slightly

Adjutant: Leptoptilus dubius - Ind. region -
scavenger
by bill - black neck.



Order Ciconiiformes

Fam: Threskiornithidae: Ibises, Spoonbills

Char: Bill much decurved & flattened & spoon-shaped.

Distrib: Ethiopia, Pol., Nearct. Neotrop. Ind, Aust (S.R.Z.)

Wetland regions, both hemispheres

(Platolla - spoonbills Europe, Africa Asia & redoubt)

(28 spp. altogether, many.)

Habitat: open water, swamps, lake, etc.

Notes: Both groups having birds - colonial -

both feed in water in reed beds.

Scarlet Ibis: Guara rubra (L.) Trop. Sth. Amer. - casual
in West Indies & Central America

Order: Ciconiiformes

major birds - 47 orders

Fam: Phoenicopteridae: Flamingos

Char: Very long slender legs, long neck (18-24 cervical vert.)
bill extremely long - midline - both mandibles with (small)
lamellae - fleshy, tongue thick. Hind toe small or
absent - fore-toes webbed (increased) rudimentary
copulatory organ, high development of down.
N/B Swims freely when necessary (Palm Springs)

Distrib: Pol, Ethiopia, Neotrop. (occ. v. nearctic) & Neardic

Spp: 6 major. 3 genera Phoenicopterus Phoenicoparus
mainly tropical birds. Phoenicoparus

7-6, 11-11 Salt marshes, brackish water, fresh water.

Feed - water

Habits: Very gregarious. feeds with bill hanging
inverted, head mostly or wholly immersed

Nest: mud mound above water level (Palm Springs)
2 white eggs

Voices: Hoarse like goose.

Order: ANSERIFORMES: Screamers, Ducks 19
Geese & swans.

Fam: Anhimidae Screamers

Char: Bill gillaceous, predominantly webbed -
front toes, 2 spurs on web wing - inflexed, one
longer, Horn - 1 spine:

Distrib: Neotrop. region only.

Spp - 3.

Habitat: Swampy regions - by natural waters

Habits: L. tawny. Food: water plants

Nests - reeds - 5 eggs. Can. birds noticed. Buff,
white, 4-6.

Order ANSERIFORMES: Ducks

Fam: Anatidae: Ducks, Geese & swans.

Char: Antenna web fully webbed - you can see
large fleshy bill, gen. broad - flattened - sometimes 4-
point. It's with large spread penis. Monogamous
- nest rough, egg - new brown, brown, buff, greenish
white pure white. young down covered - able to see or
swim at once.

Distribution: Fam. by body conformation.

Genus: Geese & swans: Branta, Anser, Cygnus, Scotiella.

2. Whistling (Tree) Ducks: Dendrocygna.

3. Shelducks: Lophonetta, Tadorna, Alopochen, Nettion,
Cyanochen, Chloephaga, Querquedula, Tachyeres.

4. River ducks: Anas, Hydrochelidon, Mareca, Querquedula,
Rallus, Stictopelta.

5. Pochards: Netta, Hythya.

6. Perching ducks: Amazonetta, Chenonetta, Hix,
Nettion, Sarkidiornis, Cairina,
Plectropterus, Anseranas.

7. Sea Ducks: Somateria, Camptorhynchus,
Melanitta, Histrionicus, Clangula,
Bucephala, Mergus.

8. Stiff-tailed Ducks: Xyura, Biziura, Thalassornis,
Heteronetta.

9. Torrent Ducks: Mergonetta.

Anserini: Swans & Geese: (Swans differ only in large
size, shorter legs, longer necks, more vertebrae). Sexes similar,
♀ higher voice, no metallic colors, young young without
strong pattern, adult male display, simple seem to
pass for life, ♀ usually in 5th year, 3rd yr sex maturity,
only 1 annual moult: no color plumage - that
mainly on 1st - 5 - graze on vegetable food
closely knit - family life - a unit until next
season.

Coscoroba coscoroba coscoroba White, brown
like but long legs - like a large red like whistling duck.
Young like a cygnet. Seems to be a link between
Swan Goose group & whistling ducks.
Habit: S. America

Dendrocygini: Whistling ducks: Little brown young -
mottled plumage. Both sexes come from same place, sexes alike,
no infallible colors, but like posture & display -
vegetable food - nest usually just on ground - holes - trees. Eldon
which is - high but has spiky, small India, Africa
S. America & Australia.

Tadornini: Shelducks: Not far from river ducks.
Superficial resemblance to quail - short thick bill,
eggs long, sexes alike as diff. voice. Sex very diff, young
brown on end of wing. Eggs small, some species have
swoosh-like call to mate. Chloropsis: see p 13.

Anatini: River Ducks: surface-feeding ducks. Smaller, pointed
tail, waddling walk, legs short & feet thick. 2 months per annum.
Some sex dimorph. Most fresh water some go to sea some
live in shallow water but "upending" display
follows common pattern requires elaboration.
Blue Duck N.Z. abundant
Pink-eared Duck
Pink-headed Duck
Fr. & Ind.

Aythya Aythya: Poached - Fresh water diving
ducks - sh. heavy body - display diff

Cairini: Perching ducks: Perching - young more
like - like the other - most nest in tree holes -
forest ducks. Young able to climb.
And this seems to be true here, henonetta too
massey ducks Cairina moschata here.

Mergini sea ducks: all great divers spend
much time at sea - bill strong hooked nail
in end of beak, curved, webbed etc. - pen silent

Oxyurini: Stiff-Tailed Ducks: No apparent connection
with other, but in water less and water well
with others. very long at brown duck 1950.

Merganetini
Wing Duck: Iron ends 1 sp. small duck,
narrow bill spots on bend of wing - live along
rapid mountain streams - level little known
Merganetta arctica.

Order Falconiformes Vultures, Hawks, Falcons.

Family: Cathartidae : New World Vultures.

Char: Anterior nostrils - but not posterior. Hair
traces a rowing - no true feathers on head.
Nostrils perforated: air tube appears to go to

Distrib: Tropical Amer. & N. Amer. & S. America.

5 spp. Hellmap.

Char: Claws comparatively small
& blunt. - ... - ...

Vultur gryphus L. Condor.

Sarcocampas popa (L.) King vulture.

Cathartes aura : Turkey vulture.

22. Order Falconiformes:

Family: Sagittariidae: Secretarybirds

Char: long legs, short wings, multiple
ventral bars Sagittarius serpentarius

Distrib: trop & subtrop. Sp.

Habitat: open country

Feeds: runs along with foot-bills grub
large insects - widely protected

Nest: large - shrub, - by bush or tree

Eggs: 2-3 white, streaked, etc. 1.5 x 1.5 cm

Food: like other reptiles, large insects
- young birds & eggs.

Order Falconiformes

23

Fam: Accipitridae: Hawks, Old World
Vultures, Harriers

Vultures. Eagle like - hooked beak & part of head

Dist: Palaearctic, Indian, Ethiopian

Char: Vivid light, brown feathers
Eggs white & brown marked with brown

Griffon Vulture: Gyps fulvus:

Spain, Greece & elsewhere
very E. Eur. abundant - common



Black Vulture: Aegypius monachus
Spain, Greece & elsewhere
rare

like above but
black head, sooty

Bearded Vulture or Lammergeyer: Gypaetus
barbatus

Range very like the Black Vult.
Note black - A. black beneath
below bill



Eagles: hooked bills - living, heads with
larger than vultures - most found on prey

Note members of eagles - e.g. Ethiopian - Fish eagle
like two-backed bird

Bald Eagle with name: Haliaeetus leucocephalus
National Emblem - in 1782. white head & neck

Monkey-eating Eagle Pithecophaga jefferyi
1 sp. found in E. India - rare eagle
high hooked bill - kills & eats monkeys
not a large animal

Buzzards. predatory,

Hawks Lack & rounded wings. long tails
- have a pronounced - peris

Wings.. long wings elegant flight

Harrier
Falcon long thin wings

Falcon.. long wings long tail. peris

26 Order : Falconiformes

Fam : Falconidae : Falcons, Caracaras

Falcons : Not altogether clear cut some intermediate

Typical falcon : pointed wings, notched tail.

Falconet (Pygmy or French Falcon,) theropod = 9

Indian Eagle (Tropical area.)

Feed mostly insects, small, small birds -
small rodents

Caracaras (Caracara) - semi-Caracara
 Nest N. N. S. America

Cha Falcon like - feeds bird in front,
Caracara - but not quite as
 gregarious, several seen

Nest : Tree - nest lined with
 wool - eggs - 2 - 3 - 4
 and 5 to 6



28 Order Galliformes Megapodidae
Curae & ow's
Pheasants
Hoatzins

Fam: Megapodiidae 172-196 spp.

Char ^{Hallmarks of} all ^{with} birds ^{others} - mostly - mostly
raised by one or more parents of birds -
young hatched fully feathered without
incubation period - all to fly almost
from birth. ^{Hallmarks of} all ^{with} birds ^{others} - mostly - mostly

Dist all of Pacific from the Philippines to
the Atlantic from the North to the South west
to the South west to the South west to the South west

Megapodidae Widespread through the tropics

Dist Pacific from the Philippines to the South west to the South west to the South west

Characteristics mostly from the Philippines to the South west to the South west to the South west

Curipoa Melanesia

Leipoa Aust

Abellura Aust

Aligalla NE Asia

Mayra NE Asia

Order Galliformes.

29

Fam: Cracidae: Curassows, Guans
Chachalaca.

Chaetoloma :

Char: Red glass left, near center - see
as yet - white, no other external
diffs - total h. - yellow - present

curassows, \div Crax spp.

D. st. - cent. n e s t r a m i c a. (20) k i c a

char Fowl-like - long tailed, (some) crested heads.

- many species, arboreal, live after other

more negative

Habitat : in open d?

Food: Fruit

leaf cover, etc:

Chacholaca: (Ortalsky) near N. H. W.

- name for - call *chacha-ach*

Colours: Various. Some green above & beneath.

Fairfax Real: Great Curve no. 1, Gray ribbon
p. 4. 1883.

Some show lameness, uncertainty

Guang, is interesting, even as if not the same name.

Just over 1000 miles

Perth Seattle - 1900 - 1901

30. Order Galliformes

Fam: Tetraonidae: Grouse

Char: Tail up above level, other legs
Nostrils = wholly, Tarsi & toes = fully
feathered - or only lower feathers & only
upper half plumbed. Side of tail
preternate - long
NO Spurs on tarsal claw. Sex

D-it Nth Hemisphere

Black grouse - Black cock (12-8) ♀ = grey hen

Grouse Red Grouse - more found in England

Partridge Partridge & Quail

Capercaille Partridge - not - E Asia
- coniferous forests

Prairie chicken ?
Loose Hen ?

31

Рассвет.

Tarsus partly or entirely naked - often armed
with a spine. Hallux present.

Dist: Great Camp Lake

Green Wedge-tails - many migratory;

San Antonio, Texas, Feb. 11, 1901.

Phosant: 3' hydroxyl group 1 on phosant group
 10. most common (Hilacon)

10. Malaysia Europe 2nd Prapowls.

Droneolus papua sothen (Parapodophter)

not so large.

not so large.
Framed in .. Family photos .. localities -

no water - some stay as gas, some liquid.

at 11. - ft. Run rapidly. Fly little,

est pour lui, je suis sûr qu'il

nest like Ruckel-dog 6-14 eggs -

Luff 7. 11. 1906. Luff 8. 11. 1906.

Car. 1200

32 Order Galliformes

Fam: Numididae: Guinea fowl

Char: Crested or helmeted. Black spotted
white. Pair of wattles no spur. Hallux present

~~the same as domestic bird~~

Dit: Spina Madagasc

hab: may be gregarious at times

Order GalliformesFam.: Meleagrididae: TurkeysChar.: The 7 toes each with cornuculated
♂ + well developedDist.: N.H. & Cent. Amer. - Mexico, Guatemala,
Yucatan, Central AmericaHabits: Bird. & woodland. flock - non-
building in open. otherwise like domestic
chickens.

34 Order Galliformes

Fam: Opisthocomidae: Hoatzins

Char: Hallux very long, feet very small
immature - crop. Young pullet is naked
pallid - index digit provided with claw
enable to climb - also able to swim & dive

Dist - - - - -

Nest - sticks, mud & water

N/B crop & - - - - -
for food - - - - -
very - - - - -

Class - - - - -

See Tropical Wild Life - Beebe, Hartley, Howell.
- British Museum
N.V. - vol 200 1917

Order : Gruiformes : Cranes, Roite³⁵
+ 011132

Fam : Mesomatidae : Rooteles, Munis.

see S.N.H. p662.

Mesites anomis : Nosplem.

variously designated originally

N/B Check refs in other checked
look up any other refs.

36 Order: Gruiformes.

Fam: Turnicidae: Bustard-Grouse.
(Hemipodes)

Char: ~~very~~ absent - young born
covered with down still in nest after
hatching

N/B ♀ larger, plumage brighter, 3 incubates
tends to be terminal. often weaker.

Dist. Ind. Reg, through to Aust. Reg.
S. Afr. reg. with Europe.

Nesting: deep nest - 1st egg - potted.

Order Gruiformes.

Fam: Pedionomidae: Plain-Wanderers
char Hallux present

Habitat: Hallux present, wing diastatosis,
 14 left caudal, large egg pyriform
 : sep from Turnicidae

Dist Bust

38 Order: Gruiformes

Fam: Gruidae: Cranes

Char Stomach grooved, secure convolution.
Stomach bill maybe short - usually
grooved on lower mandible. Fly with
neck outstretched, rump up, voice
monotonous, some migratory, perform
stately ceremonial dances in spring.

Dist Kaleahue, Ethiopia, ...
rep. - arch.

Nest: In grass or above water. Eggs: 1-2. (Spotted)

Habitat: Marshes, swamps, plain, fields.

Food: ... vegetation

Order: Gruiformes.

39

(blue-winged teal, kamoharua)

Family: Ardeidae: Limpkin

Illust S.N.H. p 665

(Colombian)

Bill: 2-fingered rather - strong + pointed
like large waders, bill is 4-fingered
long + thin, ...

Dist: Neotrop. (esp. major)

Habitat: swamps, bottom stream.

~~Not~~ Food molluscs, ... and life.

Nest: ... among reeds, ... N/B ...
incubated but like wader, lay 10-12 white
not spotted like wader,

Habit: solitary or family party - shy -

fly with legs ...

40 Order: Gruiformes

Fam: Psophiidae: Trumpeters

Char Bill short. fowl-like

Tibia very long, legs short. N.H.
long wampypt. (nocturnal) enormous, long
males, extending outside abdomen
slightly, 5 cm.



Diet (3 sp. max) consist of Nectar. & shrubs.

Habitat Tropical forest

Habits: Form flock, seldom fly, run swiftly

Voice Deep. ventriloquist - long wampypt.

Early times kept by Brazil natives

well take a water. N.H.

Nest

Order Gruiformes.

41

Fam: Rallidae: Rails, Coots, Gallinules

has bill various shapes long - bone rails,
short - crabs, deep in gallinules Toes
slender & long, sometimes webbed & scalloped
Hollus always short
Eggs gen. numerous - cream spotted
Very low voices. Able to move in
all adapted to swamp life some adjusted
to trees for S. W. wings short but some
migrate N/B some flightless.
it is a monophyletic

Phalaropus lobatus (Gallinules spp. - two sp.)
found. Eggs small variety of areas - open & forest
Nests under bushes etc. Flightless, confined
N2 reg

Horned Coot Fulica cornuta: Very rare - 85 known 1942
(Chile & Bolivia) - has extraordinarily wattle - builds
pile of stones on which to place nest - in Indigofera paper &
Grand Coot F. gigantea also rare in marshes - some
pop.

N/B See pp 151-2. Val IV Habb. and Recurvirostra
shows the separate by low.

42. Order Gruiformes

Fam: Helionithidae: Sun-grebes.

(Fin-foots) S.M.N. 570

char: Plumage close-set - gen appearance of diving
rail - toes scalloped lateral webs.
Habits of cormorant or grebe - all early

app 3 1/2 in 1

Dist: Edroff 1, Nedroff 1, Ind 1

Habitat: dense wooded stream -

Habits Swimmer-like walk

Ned (pica sp) platpica, mott. 1 2, but
over water.

Order : Graeiiformes

8

Fam: Rhynchochetidae : Kagus

Char Bill keratin-like length of bill 5
— 22 inches. — not changed
Newly at the bottom

Dist: confined to New Caledonia. Hymen.

— Habit: Rocky marine - sea water.

Habits: Dadys - looking out of
the mouth upward, the spread wings
etc. — — — — —, — — — — —
— many birds living together in
— — — — — molluscs, — — — — —

Illustr ENH. p669

44. Order: Gruiformes

Fam: Eurypygidae - Sun-bitterns.

Char. crested mud bog. Bill like rail

Eggs like Colaptes auratus

Nestling like the brown cowbird

Spp. 1 major. Bill crane-like

Dial Neotropical

Habitat: wooded swampy parts

Nest: said to be sticks grass mud -

eggs reddish buff. brown Cam. N.H.

Habits: like, Keen exerts fantastic dance

- spreading wings etc

N/B Apparently a very beautiful bird - bands,

chestnut. red grey white - beautiful markings

on wings. Name: Not given to sunlight

and like a bird.

46 Order Gruiformes

Fam: Otididae. Bustards

char caeca present Bill rather flattened, obtuse,
Nasal depression under & kept open,

Egg double spotted. Nesting: downy

able to run soon after birth. Ruminant.
penis, NO testis Ground dwellers. ^{also perched}

Diet: Pal, Entomoz. Herb. 23 eggs (average)

Habitat Open & low

Notes

Order: Charadriiformes: Shore birds?
Gulls
Auks.

Fam: Jacariidae: Jaegers

48 Order: Charadriiformes

Fam: Rostratulidae: Painted Snipe

Order : Charadriiformes

49

Fam : Hematopodidae : Oystercatchers

50 Order: Charadriiformes

Fam: Charadriidae Plovers Turnstones
Surfbirds -

5x Order: Charadriiformes

Fam: Scolopacidae: Snipe Woodcock,
Sandpipers.

54. Order Charadriiformes

Fam. Recurvirostridae: Avocets
Stilts.

Order Charadriiformes

Fam: Phalaropodidae: Phalaropus

56 Order Charadriiformes

Family: Dromadidae: Crested Plovers

char. egg, white. black white bill
like bird - thick heavy bill, toes partly
webbed - nests - burrows.

dist bill not

Habitat: Sea coast

Habit Flies with neck legs out rocky coast

Feeds on crabs chicks. (also clams)

N/B Nest: In burrow - some just
yellow egg, white venomous

Order: Charadriiformes

57

Fam: Burhinidae Thick-knees

58 Order: Charadriiformes

Fam: Glareolidae: Plover, Coursers

Order: Thimocorididae Charadriiformes 59

Fam: Thimocorididae: Seed snipe

Char but like game birds - feet not webbed,

hind toe present tarsus retr. prot.

soot - plumage like game birds. flight

like plovers nest - depression -

- eggs pale mottled with markings

downy 24th 1883.

Diet: 1/4 crabs. Penn to Ducktown 24.

Habitat: usually feed on bay,

Habits Run well, fly like game

60 Order: Charadriiformes:

Fam.: Chionididae: Sheath bills.

Char Bill with complex amphistoma

Feet not webbed (only membrane
between long toes. no toe claw)

Habitat: land to wet. Nests - holes
or built up of sticks. Eggs like cup-shaped.

2 sp. max

Great Green ^{South} amer. & Islands

with Atlantic - Wedge-tailed - etc.

Order: Charadriiformes.

61

Fam: Stercorariidae Skuas, Jaegers

Chas Fam two species - young downy

dark to green above - strong claws - dark
hooked bills - all on bill - large space
have short tails, the small (jaegers) - long wedge
shaped tail - with 2 long central tail feathers

Dist mainly of latitude. ocean, coast

Habits Bird of prey - eat - general name - I suspect
are on land & also ocean - a few other species
for their food mixed birds - Flight gull-like
powerful - short & - tracks - track in water

Nest : a - just hollow lined with grass or
moss - Eggs 2-3 spotted brown purple

Name : Skua from all - Jaeger - from west
for hunt - Sexes alike

Variation : colour variation - not deep - understood
4 species said in the arctic region - Great Skua, Lesser
- etc by races The 3 smallest species - in group E
Other term species due to weather winter while
Get Skua - winter - long - 1 year - 2 both hemisphere
during winter - coast - of E. A. - S. of West - where
Skua - common - in Arctic Skua - winter's

Catharacta SKUG SKUG Branta : Great SKUG Nth Atlantic &

.. .. Lounberg

Southern SKUG Ethena ant

MacCormicki interfere Skua

Plus lists 6 subsp of C. S. S. Antarctic Sea N.Z. stop
: sub = 1 + 5 = 6 in all

Stercorarius pomarinus : Parasitic Jaeger in the Arctic

parasiticus Parasitic

longicaudus long-tailed

} and
with
but
just
two range
to and

62 Order: Charadriiformes.

Fam: Laridae: Gulls, Terns

Order: Charadriiformes

63

Fam: Rynchopidae (scissors bill)

Char: mandible moves on premax. lower
mand. longer. wing 2/3, tail 1/3 slightly
forked. feet all also adapted.

Dist: Temp. & trop. regions Nth & Sth Amer.
- trop. Africa - India & China (includes Canada)

Habit: lives over water with lower bill
used subaquatically. feeds on small
invertebrates.

6A Order: Charadriiformes

1901: Alcides: Am: GuSk: Barros

Chas. Aquatic characiformes -

- diving habits. compared to salt water -

[illegible]

lateral compression sometimes
shape NB2 is a secret house

shed after each breeding season -

Some migratory, eggs large 1-2

Dist: Nth region of north America

British: Alca spp

Plantas

Wm. W. W.

Fraxinula

Hazorbell

1. Affluence

Guillermo

Proffered

sea
Plants

also

Wanda

Alle

~~Эрфа~~ Эрре =

Trachysomus.

Person: _____

Ptychozamia o
d. 1810

Fratercula

exploral

for her

Merrill

Navskie

Guillemot.

muscle

in klet

Pepper

66 Order Columbiformes:

Fam: Raphidae: Dodo's, Solitaires

counts?

3 extinct species: Dodo, Mauritius
Dodo, Reunion & Solitaire of
Rodrigues

Dodo Immense pigeon like with a egg
(the Turkey - shorter bill & wing)
flightless - large bill ending in hook
Plumage dark. Unconcerned
17th C. Believed to inhabit forest,

swallow pebbles, - large white egg on ground.

Solitaire: Large dove with waxy slaty

nest on leaf, leaves - large white egg

Fam Columbidae: Pigeons, Doves

Char: *Calca* absent or small. Phytophages,
well developed wing. Bloom on feathers,
- generally strong & glossy. Nests - cave,
holes, ground or light open structure - tree.
Eggs white (yellow in fresh form) nearly
always 2. Two small - 1. Nearly
all are aerial - few rock dwellers or terrestrial.

Dist: - Cosmopolitan - not Arctic, Subarctic.
- antauctic. 289 sp. major.

Red Bird
Tooth-billed Pigeon or Samoan Pigeon. *Didunculus*
strigatus

Dist: Samoan Is. (Upolu & Savaii)

Powerful winged owl-like or. red bill
felt ashen round eye red - terrestrial
before fledging much on ground.





Order: Psittaciformes: Lorie's
Parrots
Macaws.

69

Fam: Psittacidae: Lorie's Parrot 1790s. s
~~has~~ Feet ~~seem~~ zygodactyl by reversion
of 4th toe. No cerea - gill blades - gill absent.

Dist Neotomidae: NZ. only
Loridae West Ind.

Psitt. Trop. Amer.

Order: Cuculiformes : Plantain-eaters 71

Cric Koo's
Road-runners
H. 112

Fam: Plusophagidae: Plusophagus Plusophagus

~~Ch~~ Feet semi-zygodactylous. In 4th & outer
We capable pbe - turned back & forward.
Halteres present. No sensory sacchae.
~~most washed~~, ~~conic~~. ~~serrated~~ ~~thin~~ bill
2 groups ~~inner wing~~ & ~~per~~ we f

Dist.: Conf. to *Eithropa regina*.

Lehigh Woodlands of forest.

N/B because we were here, very

field, present, the same contains
copper & LNH 706. B.M.C. XIX 435.

Habit: Known one, not parasitic
cocoons bird, -

mid -

72 Order: Cuculiformes

Fam. Cuculidae - Cuckoo. Foot - 10mm. 3/4 in.
do long vestes; Foot zygodactyl,
cosmopolite.

Roadrunners : Geococcyx

Dist: Cent. America



Long wings - runs at great speed - comical
evolution - catches in other

↑ maybe
subsiding
(12) wing
length -
↑ surface
area

Anis notophaga

that cent America with Amer.

74. Order: Strigiformes. Owls
N/B See math. Vol V on anat. forms

Fam: Tytonidae: Barn Owl

Char Primaries 11 (first much reduced)
(4th & 5th coverts 2nd & 3rd reversibly)

Inner toe as long as middle claw, middle
toe much shorter. Cerebral decalcification -

Nearly cosmopolitan

Feeds on insects, small mammals - is different
from other species

Dist: Absent from NZ, Hawaiian Is &
colder regions.

Order: Strigiformes

N/B See Mathews Vol V on Ant forms.

Fam: Strigidae. Owl's
(4th digit is reversible)

Char Inner toe much shorter than
middle toe - claw of latter not pectinate.
Facial disks more or less round

Dist Absent only from Polynesia

To Order: Caprimulgiformes Oilbirds
To slenderers
frogmouths
goats.

Family: Steatornithidae Oilbirds
Guanocharos

Char. Resemble ~~podiceps~~ podiceps but
phenom. distinct. bill like coraci.
Eggs, white. incub. cone, repariscul.

Diet: Unknown. Guano to Reu

Birds killed by natives for oil from body.
for lamps.

Order: Sarimuljiformes

27

Fam: Podargidae Frogmouths

78 Order: Caprimulgiformes

Fam: Nyctibiidae: Ptycho-

chos: Nightjar etc.

Dist: Thap. America incl. Jamaica

Order Caprimulgiformes

Fam: Aegothelidae: Orlet Frogmoult's

80 Order: Caprimulgiformes

Family: Goatsuckers.

Order: Apodiformes: Swifts, Hummingbirds^{8/}

Fam: Apodidae: Swifts

82 Order: Coliiformes: Coliies.
Apodiformes.

Fam: Hemiprocniidae (related to Swifts)
Streptopodidae (related to Swifts)

has likely done feathers on plants.

elongated nostrils: o, superciliary
stripes on head. Eyes diff (no pupils
on Q?) Nest of half round, dark speckled.

branch - 1 egg. N/B Nest glued to branch.

Dist:

529 glued with saliva.
to nest. Alagoas. S.W. Pacific. P 78

Indo-Indo.

Order: Apodiformes

Fam: Trochilidae hummingbirds

char. large heart, tongue visible tube extending
far out, separates into 2 external lateral sheaths
Eggs always white, 2 in a pair
flight amazingly rapid, at times, enclosed
in a protective sheath, no movement
of the wings, no movement of the body

Diet: ^{Carodae} insects to Sth America

Feeds Insects ~~showing~~ nectar

habits: carry out pollen when in flower

84 Order: Coliiformes : Coliids

Fam: Coliidae (Mouse birds)

Char: No coeca all toe, directed forward
- perisperm, reversible scat. cup -
beak. Eggs - long tails, very mouse like

Dist: Ethiopia

Habitat Forest flight laboured

Hab: Climb with whole metatarsals
applies to branch

Order : Trogoniformes : Trogon

Fam: Trogonidae. Trog. sp.

Ch. Bill Sharp, strong. Movable.

swales & for open in No. 2000 &

base 2 monomial - covered with

The apple leaf arrangement with Heterodactylos
 halves of second leaf arrangement

Dist. Tropical areas of the eastern
hills of the Himalayas.

Habitat: Forest.

Habit: Nocturnal, to fly a - pairs. Flight rapid about 100 ft.

Four French, inserted.

Fungal prob. most "darkened"

4/B This is ancient form
once occurring in Palawan
as shown by fossils C.N.H. 443

86 Order : Coraciiformes : Kingfishers

Hoopoes
Wood-hoopoes, Bee eaters
Cuckoo-rollers, rollers
Gad-rollers, Hornbills
Todies
motmots.

Fam : Alcedinidae : Kingfishers

Fam: Todidae: Todies.

Char: Bill long, flattened. Small Kingfisher.
- like birds. Bill mainly straight.
color: Bright green above, whitish beneath,
bright red throat.

Dist: Confined to New Guinea, Australia, West Africa.

Habit: Flycatchers, snapping up victims,
as they go by.

Nest: Resemble the species by tunneling
- white egg -

88 Order: Coraciiformes

Family: Picropodidae Platys

Char Feet mesodactylous (unequal last)

Upper T. & C. by greater size ^{relatively} ^{weaker}
longer, distinctly decurved bill
1st. 2nd. 3rd. colors: olive-green & dusky
(Irides mostly red or white like T. & C. - Ridgway)

Distr Conf to cent. & S. America

Habitat: Forest

Habits Solitary - with long periods

Food Insects, small arthropods.

Nest: Excavate hole in stream bank.

Nest made with racquet-shaped
inches, have been seen 20. 25. 30.
produce the shape by nibbling
off the wood, 1. 11. 11. 380.



Order: Coraciiformes

89

Fam: Meropidae : Bee eaters

90 Order: Coraciiformes

Fam: Coraciidae: Rollers

Order: Coryciiformes

91

Fam: Brachypteraciidae: Ground-rollers.

92. Order Coraciiformes

Fam: Leptosomatidae : Cuckoo-rollers.

~~Coraciiformes~~

Fam: Upupidae

aka long bill Hornbill like - structure
- creates 2nd line out from the ...

Dist. Other Pat. from South to Zanzibar, ^{Ethiopia} (Africa),
India etc., as far as known.

Habitat: Low scrub, open places, old build etc.

Habit: Feeds mainly on fruit

Call Hoop - Hoop

Nest: Holes, shelves, loose stone walls etc.

- normally no nest material eggs 5-8-

whitish-green - yellow ...

94. Order: Coraciiformes.

Fam: Phoeniculidae. Wood-hoopoes
(scimitar-bills)

beak 12 in. long, search deep into
food . Not used so far as I can find.

Dist Ethiopia.

color Green black some red

bill open



Order: Coraciiformes

95

Fam. Bucerotidae Hornbills

Char. Bill very large cellular bony structure.

- casque on helmet - some spp
shrike - unisexual monogamy

Strong exiles or ayids

Eggs white, naked &
helpless, mandible, some are marked.

Diet: Belted, in dear leaf

Habitat: Jungle forest, now birds

habit - fruit - yes, fruit insect - etc

♂ casts up air, gurgles. 6 per
male & young? ? (NH 59)

Nesting: Junction of 2 branches serves as
nest, 1 female, 1 male, plaster, dung etc.

- ♀ prob. walls her self in. 1-4 white eggs

♀ emerge, with young, 7 per, see
through hole

96 Order: Piciformes. Tacamaras
Barbets
Toucans
Woodpeckers
Fluffbirds

Fam: Galbulidae: Trogonidae

Gen Zygodactylus long pointed tail
- blue-collared but zygodactylus is mistaken
plumage, long, pointed tail

Dist: Neotrop. (Cent. & S. America)

Habitat: Forest, near water

Breeding: Hollows - small holes, possibly
old stumps - egg - white, rounded

Food - Insects. Sp - Sp
- caught in air - fly over from
side - flycatcher, etc.

Fam: Bucconidae. Puffins

Char: Zygodactylous, shorter than long, bill

like Galbulae (p 96), bill looks more or less

at tip. In general purely arboreal
Bill like red or yellow. Crest - holes. Puff up
Black below. 2 or 3 pairs. 1st pair 1st

Dist Archaic & 1st America

Habitat: Woods area. Ju - ju forest



98 Order - Piciformes

Family: Caprimidae Bar. sets

Char. ^{2 species} difficult to define. Plumage usually
gaudy, not all forest birds, many
small rather heavily built birds - large stout bill
Nest - hollow - may make own hollow -
large? SWH 738 & 739. Bill more
reddish.

Dist. Athap., Tule, & Colorado.

Habit. Usually arboreal. Tree tops, hop
among branches. Not mentioned for
large wood - young
plant.

Food Fruit, flower buds, insects,
eggs

Order: ~~Indicatoridae~~
Piciformes

99

Fam: Indicatoridae: Honey-guides
char Zygodactylus. Larvae rather pink-
like

Dist: Subsp. Ind (Himalayas)

N/B Reps & Friedman 1 The Honeyguides
N&A Nalms. Bull NO 208

100 Order: Piciformes

Fam: Ramphastidae T. u. c. a. n. s.

Char: Zygodactylous - narrow bill

- superficially reminiscent of Bucerotidae
bill ex. w. the pharynx all lightness
Tongue broad & fleshy

Dist. Neotropical

Habits: Feeds on fruit & sub. insect but
bill enable it to reach ends of branches
- up of fruit down - and catch - large
bill.

Though bill is zygodactylous they hop
on branches not climb.

Nests: 2 (usually) - 1 egg - 1st

Order Piciformes

101

Fam: Picidae : Woodpeckers, Picule :

102 Order Passeriformes

Fam: Eurylaimidae: Ground, M.

char: Distinct, from all other Passeriformes by

bill & connected: 3rd & 4th toe partly

webbed (intermediate stage) Bill broad.

Heavy shape, stout habit, bright colors, large head,

1st & 2nd toe yellow & blue large large long

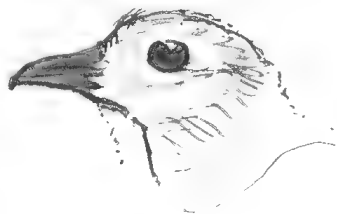
very long, 3rd & 4th toe very long, 5th toe small

Dist: Typical & ~~confined~~ to Ind. Region

- large size - also & brown - 2nd toe found

Habit: Forest, part in water, also in plant

Nest Hanging, eggs spotted.



Fam.: Dendrocolaptidae : Woodh. vers.

Fam: Ferruginidae 11. 5. 14.

be long tarsi, strong feet

Dist: str Am. str of Panama - characteristic
of Patagonian sub-region

Eggs, brownish (some)

Nest: Branch, top of post-hole, roof of house

- mud with horse hair, rootlets etc.

pellets. make large structure

shaped like baker's oven

Fam: Formicariidae. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

Fam: Conopophagidae: Ant. bits

Fam: Rhinocryptidae. Tapaculos.
Char Small wren-like birds, large
 feet, straight claws.

Dist: Sth Amer. W. L. H.

Habits: ~~Was~~ Run actively on ground.

Fam. Otiniidae - 15 sp. (Chatterers)

has One of great forest and of the island of
Tropical America from 3" to 18" -
brilliant, some dull. ^{short bill} broad tail,
90 eggs many.

Dist: Neotrop. On oceanic islands.

Nobis. Nesting. Usually, some elaborate
hanging nest, some rough stick
platform, some in holes & crevices.

Cock-o-the-rock *Rupicola, rosea* Bright orange brown
with black, orange, bl. & red feathers. Strongly
peppered above, coppery below.
Head. Very green. Bill. Black.

Umbrella Bird Cephalopterus ornatus : Black
Ineffable plumage & supertarsus large feathered
wattle hanging from throat, expanded
large flattened crest. Guiana - Amazonia

Best bird - *Orthorhynchus* spp. whole plus other
claws. It's bone with 5 -
1 egg 3. standard - - - - - country

Lesmothyne.
Zicmunculate.



Fam: Pipridae · Nin. m. m.

Fam: Tyrannidae: Tyrant Flycatchers.

Fam: Oxyruncidae. Sharphii.

Fam. Phytotomidae 112, 113, 114, 115

Fam: Pittidae Pitt.

Fam Acanthisittidae : N.Z. Wrens

Fam · Philepittidae Asities froncedini

Fam: Menuridae · Lyrebirds

Fam. Atrichornithidae: Scrub-birds.

Fam.: Alaudidae. Lark.

Fam: Hirundinidae: Swallows

Fam: Campephagidae - Cuckoo Shrike

Fam: Dicruridae Drongs.

Fam. Orioidae: Old World Orioles

Fam: Corvidae: Crow - raven - jay.

Fam Cracticidae

Red Magpie
in 12.10.1918

Fam Geological System 11th.

Fam. Ptilonorhynchidae. Bowerbirds

Form: Paradisoides 314 g Paradis.

Fam. Paradoxornithidae: Parrotbills, Suthores

Fam: Paridae - Titmouse.

Fam: Sittidae: nutcracker.

Fam. Hypsiptidae - Coral-billed Woodpecker

Fam Certhidae. trochil.

Fam: Chameidae · Wren-tits

1134

Fam: Timaliidae: Robber Thrushes

Fam: Pycnosotidae: Bulbuls

1136

Fam: Cinclidae : Dinners

Fam: Troglodytidae Wrens

1 138

, Fam: Mimidae: Thrashers, Mocking Birds

Fam: Turdidae: Thrushes

Fam. Zelandiidae: Wren-thrushes

Fam. Sy'vill' gen. Old World Marbled

142.

Fam. Regulidae: Kinglet. <sup>(Goldcrest
Firecrest)</sup>

Fam; Muscicapidae:

Fam. Prunellidae: Accentors Hedge-sparrows

FAM Motacillidae; Wagtails, Pipits

Egm: Bomb gillida: Waxwings
Chs look plumped over colonies but has
 - 2 spp with wax-like cel. appendage on
 wing

Dist: Palaeomelic & Neomelic

Nest: cup-shaped - - - - - conifer;
migratory - influxes

mainly arboreal, food insects, mainly taken from

n/o wax tip formed by fusion of 1st & 2nd
 7 peaks with tip 3 in the same
 place. / 27

Fam: Philosonatidae . Big Feathers

Fam: Dulidae. Polychaeta.

120

Fam: Artamidae: Wood-swallows

Fam: Vangidae Mr. J. J. Brown

152

Fam: Laniidae: Shrikes

Fam. Prionopidae Head shields

Fam: Cycloarthidae Pepper-Shrikes

Fam: Vireonidae . ^{Shrike-Vireo} ~~Shrike-Vireo~~

Fam. Callaeidae : Wattled Crows Hina's, saddlebacks

Dist. Conf. to N.Z.

like

Saddle back Philasterus

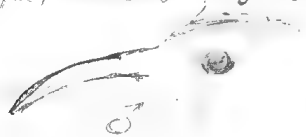
2 Subsp. Both now very rare V. H. & L. 2nd.

Fea: Glossy black. back chestnut. ant & feet
black. wattle orange
Insects, berries, etc.
Nests - made of sticks & twigs
Eggs pale grey, with brown blotches.

Hina: Heterotocha acutirostris

Nth I. N.Z. prob extant since about 1907.

Gen. colour glossy black juvenal gloss - wing
white bell's orange wattle both sexes



Feeds on small larvae spiders - fruit etc.
N/B ♂ abides. young wood for larvae - fruit
♀ probes the soft tunnels where he
could reach. keep low to ground, rarely
fly high. forest cover very
thick in some places - some with - some.

Wattled Crow Callaeas cinerea

2 subsp. 1st subsp. N.Z.

Chin white, chestnut - black grey
- velvety black - the throat also white.
Eggs olive grey, speckled with grey
keep to ground, fly very little.
nest built in...

Fam. Sternidae n. sp.

Fam. Meliphagidae Honey-eaters

Australo-Papuan Region - mostly sweet

Malayana 1 sp. Brown Honeyeater -

Lichenura indistincta reaching Bali

2 in N.Z. 3 indigenous. ex-lucane sp.

Stitchbird (Hibi) Notiomystis cincta "Stitch name
from call. rather meliorius like black & yellow.

Bell-bird Anthonis melanura + others: olive green
mossy. purplehead - some bell-like notes.

Tui Prosthemadera novaezeelandiae

Metallic green - bluish purple reflection.

plumage - long plumes on head & neck

Two white tufts on throat



Fam: Nectariniidae. Sunbirds

Fam. Dicotyle. Flower - 101

Fam. Zosteropidae Leptocypidae.

Fam: Vireonidae. Vireos (Greenlets)

Char: Small greenish. grayish yellow-buff
underparts, marked with spots, streaks.

Dist: N. Am., cent. & S. America

Habitat: Leafy portions of trees.

Habits: Insectivorous

Nest: Cup shaped & suspended between branch
forks - deep of bark grasses etc - bound
together with spider-webs. eggs 3 - white-
creamy - spotted brown - purplish.

"But note that Wood-warblers also do this in America

N/B Appears to take place of the World hybrid -

Neotoma & of mix of Neotoma, Neotoma, Neotoma
in America, Illinois etc - as at.

Fam. Coerebidae: *Hemiprocne*

Fam Drepanididae Hawaiian Honeycreepers

Fam. . Parulidae

Wood Warbler

166

Fam: Ploceidae: Weaver-finches

Form: Icteridae: Blackbirds, Tringids.

Char: Represent the Starling & Sturnidae) the New
 World from which latter are completely excluded
 up to crowing, etc. etc. as long as we find it
 Tail rounder - separating Black & black
 predominant yellow with red - pull & stretch
 ventral 1001 with moving walk
Dist: Neotoma & Neotoma sp. - sexes diff

Bobolinks, (American) Blackbirds, (New World) Grackles,
 Meadowlarks, Cowbirds. Some like
 Bobolinks & cowbirds have short sparrow like
 bills. etc.

Food Insects & grain

cowbirds: Molothrus ~~etc~~: Polygamous, polyandrous,
 build no nests, lay - nests other birds

Fam: Tersinidae Swallow-tailers

Fam: Catamblyrhynchidae: Platycopp & Findis

Fam: Fringillidae: Grosbeaks, Finches, Parrots

Class: Perhaps largest family. B. it is well
studied, more & less so. exp. & mostly off

Dist: almost cosmopolitan: (Not ant. exp.)

Darwin's Finches: Geospiza spp.

Tree-Finch Camarhynchus pallidus Cassin's stock
Wood-pecker Finch back pp 8-9.

2nd: Mayr & Rehn.

Perching Birds: Passerines

Classification in Muscles of Syrinx: 1847 Henricus Müller.

1. Eurglaninidae

Broadbill. upper jaw all the same as regular with
some non-passive, in Henricus of deep
in muscles of two. larynx is cervical vert. compared
with it in most other Passerines.

remaining Passerines, into 2 groups.

A. Mesomyodes or Clamatores: Inferior
muscles of any of Syrinx attached to one
of the ends or to the middle of bronchial
half rings. (Eurglaninidae agree with this.)
(Also subdivided)

B. Homomyodes: Muscles attached to both
ends of bronchial half rings.
contains Oscines or True Song Birds
plus: Strickmannithidae & Monoditidae.
only 2-3 pairs frequently in each compared
in these genera on both sides 5-7 pairs
in larynx of other but attached to middle.

If about 8600 species of living birds. 5000-5100
= Passerines (about 4000 Oscines) as a group
the song birds are the most numerous, successful,
and apparently extinct of the entire
class Aves.



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Rare and/or Unusual Species

Horned Grebe Fulica cornuta

Dividing birds: Gannets, Pelicans, Tropicbirds
Terns

